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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,129	07/16/2003	Yuriy Gmirya	67,008-070;S-5668	1958

26096 7590 02/14/2005
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EXAMINER
LE, DAVID D

ART UNIT	PAPER NUMBER
3681	

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,129

Applicant(s)

GMIRYA, YURIY

Examiner

David D. Le

Art Unit

3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This is the second Office action on the merits of Application No. 10/621,129, filed on 16 July 2003. Claims 1-27 are pending.

Documents

2. The following documents have been received and filed as part of the patent application:
 - Information Disclosure Statement, received on 7/16/03

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 25 recites the limitation "a floating pinion axis of rotation". It is unclear whether this newly recited "a floating pinion axis of rotation" is different from the first recited "a pinion axis of rotation", on line 7 of claim 1.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1, 12, and 20-25 are rejected under 35 U.S.C. 102(e) as being anticipated by**

US Patent Application Publication No. US 2004/0237684 A1 to Bossler.

Claims 1, 12, and 20-25:

Bossler (Figs. 1-5; paragraphs [0018] to [0035]) discloses a torque dividing gear drive system and a method of driving an output gear comprising:

- A first gear (Fig. 1, being gears 22a, 22b, or 23) having a first gear rotation axis (see Fig. 1);
- A second gear (Fig. 1, being gears 22a, 22b, or 23) having a second gear rotation axis (see Fig. 1);
- A floating pinion (21) gear driven by a radially unsupported pinion shaft (20) which provides a flexibility to define a floating pinion gear displacement envelope, said floating pinion gear meshed with said first spur gear and said second spur gear, said pinion gear mounted for rotation about a pinion axis of rotation, said floating pinion gear axis of rotation displaceable within said floating pinion gear displacement envelope to split a load between said first spur gear and said second spur gear (i.e., [0019] – [0020]);

- Wherein said floating pinion gear is mounted to said radially unsupported pinion shaft in a cantilever manner (see Fig. 1 and [0019] – [0020]);
- Wherein said floating pinion gear is mounted to a distal end of said radially unsupported pinion shaft (i.e., Fig. 1);
- Wherein said displacement envelope within which said floating pinion gear axis of rotation may be displaced is inherently non-linear (see Fig. 5);
- Wherein said displacement envelope within which said floating pinion gear axis of rotation may be displaced in transverse to said floating pinion gear axis of rotation (see Fig. 5);
- Wherein, inherently, said displacement envelope within which said floating pinion gear axis of rotation may be displaced to split said load between said first spur gear and said second spur gear is generally diamond shape; and
- Wherein said floating pinion axis of rotation, said first spur gear axis of rotation, and said second spur gear axis of rotation are located along a common curved line; and said floating pinion axis of rotation is displaceable off said common curved line to split a load between said first spur gear and second spur gear (see Fig. 5).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 3-11, 13-19, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,813,292 to Kish et al. in view of U.S. Patent Application Publication No. US 2004/0237684 A1 to Bossler.**

Claims 3-11, 13-19, and 26-27:

Kish (i.e., Figs. 1-2 and 6; column 1, line 50 – column 13, line 62) discloses a split path transmission system comprising:

- An input shaft (104L or 104R);
- A face gear (being the bevel gear 112L or 112R) driven by the input shaft about a face gear axis of rotation (see Fig. 1);
- A first spur gear (116L Fwd or 116R Fwd) mounted for rotation about a first spur gear axis of rotation (see Fig. 1);
- A second spur gear (116L Aft or 116R Aft) mounted for rotation about a second spur gear axis of rotation (see Fig. 1);

- A pinion (114L or 114R) driven by a pinion shaft mounted to the face gear, the pinion meshed with the first spur gear and the second spur gear, and the pinion mounted for rotation about a pinion axis of rotation (see Fig. 1);
- A first double helical gear (118L Fwd or 118R Fwd);
- A second double helical gear (118L Aft or 118R Aft);
- An output gear (108) meshed with the first and second double helical gears (see Fig. 1);
- A main rotor shaft (102) driven by the output gear;
- Wherein the input shaft is driven by a gas turbine engine (column1, lines 50-55);
and
- Wherein the face gear defines a gear face perpendicular to the face gear axis of rotation, and the input shaft angled relative to the gear face (see Fig. 1).

Kish does not teach a floating pinion gear driven by a radially unsupported pinion shaft providing a flexibility to define a floating pinion gear displacement envelope.

Bossler (Figs. 1-5; paragraphs [0018] to [0035]), on the other hand, teaches a torque dividing gear drive system and a method of driving an output gear comprising:

- A floating pinion gear (21) driven by a radially unsupported pinion shaft (20) providing a flexibility to define a floating pinion gear displacement envelope, as set forth in paragraph 6 above.

It would have been obvious to one of ordinary skill in the art at the time this invention was made to modify Kish's gear train branches 106L and 106R such that the pinion gear 114L and 114R are floating pinions, which are driven by a pair of radially unsupported pinion shafts, in view of Bossler teaching of floating pinion gear, in order to evenly distributing a torque between the first and second spur gears.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 3-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Peterson (U. S. Patent No. 4,682,512) teaches a power train for heavy lift helicopters as shown in Fig. 9.
- Cocking (U. S. Patent No. 4,484,491) teaches a transmission system as shown in Fig. 5
- Tomaselli et al. (U. S. Patent No. 5,572,910) teaches a helicopter transmission as shown in Fig. 1.
- Bossler, Jr. (U. S. Patent No. 5,233,886) teaches a gear arrangement as shown in Fig. 1.
- Pias et al. (U. S. Patent No. 5,974,911) teaches a gear transmission comprising a floating balance pinion as shown in Fig. 1.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 703-305-3690 or 571-272-7092. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830 or 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3681

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ddl


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ART UNIT 3681